

214056US

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
HIROYUKI SHIMIZU ET AL : ATTN: APPLICATION DIVISION
NEW CONTINUATION OF
SERIAL NO: 09/190,264 :
FILED: HEREWITH :
FOR: WIRE FOR WELDING

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to examination on the merits, please amend the application identified above as follows:

IN THE SPECIFICATION

Please amend the specification as follows:

Amend the paragraph from page 6, line 17 to page 7, line 1 as follows:

(Amended) Examples of the chain compound include carboxylic acids or metal carboxylates. The carboxylic acid is one selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, decanoic acid, lauric acid, linderic acid, and metal carboxylates include those salts of the above-mentioned careboxylic acids and metals selected from Li, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

Amend the paragraph at the bottom of page 25 as follows:

(Amended) Fluxes for stainless steel having compositions indicated in table 5 and indicated by F3 and F4 were combined and packed in hoops M3 and M4, which, respectively, had compositions indicated in Table 4 below, thereby providing basic wires. The wires were each subjected to wire drawing to obtain flux-cored wires for stainless steel having wire diameters of 1.2 to 1.6 mm. The fluxes were packed in the respective hoops so that the weight of the fluxes per total weight of the wire (i.e. flux rate) was set at 15 to 25 wt%.

Amend page 38, Table 9-1 as follows:

Table 9-1 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
Example	1	○	⊙	○
	2	○	○	⊙
	3	○	⊙	○
	4	○	⊙	○
	5	○	○	⊙
	6	○	⊙	○
	7	○	○	⊙
	8	○	⊙	○
	9	○	○	○
	10	○	⊙	○
	11	○	⊙	○

Amend page 38, Table 9-2 as follows:

Table 9-2 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
Example	12	⊙	⊙	○
	13	○	⊙	⊙
	14	⊙	⊙	○
	15	⊙	⊙	○
	16	⊙	⊙	○
	17	⊙	⊙	○
	18	○	⊙	○
	19	○	○	⊙
	20	⊙	⊙	⊙
	21	⊙	⊙	○
	22	⊙	⊙	○
	23	⊙	⊙	○
	24	⊙	⊙	○
	25	○	○	○
	26	⊙	⊙	⊙
	27	⊙	⊙	○
	28	○	○	⊙
	29	○	⊙	○
	30	⊙	⊙	⊙

Amend page 39, Table 9-3 as follows:

Table 9-3 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
Example	31	○	○	◎
	32	○	○	◎
	33	○	○	◎
	34	○	◎	○
	35	○	○	◎
	36	○	◎	○
	37	○	◎	○
	38	○	◎	○
	39	○	○	◎
	40	◎	◎	○
	41	○	◎	○

Amend page 39, Table 9-4 as follows:

Table 9-4 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
Example	42	○	○	◎
	43	○	○	◎
	44	○	◎	○
	45	○	○	◎
	46	○	◎	○
	47	○	◎	○
	48	○	○	◎
	49	○	○	◎
	50	○	○	◎
	51	○	◎	◎

IN THE CLAIMS

Please cancel Claims 2 and 11 without prejudice to or disclaimer of the subject matter therein.

Please amend Claims 1, 3-10 and 12 as follows:

1. (Amended) A welding wire comprising

a wire having a wire surface; and

a deposit on the wire surface, wherein

the deposit comprises

at least one lubricating particle, and

at least one hydrocarbon compound selected from the group consisting of carboxylic acids and metal carboxylates;

the at least one lubricating particle comprises a material selected from the group consisting of molybdenum disulfide, tungsten disulfide, graphite carbon and polytetrafluoroethylene;

the at least one hydrocarbon compound consists of atoms selected from the group consisting of hydrogen, carbon, oxygen, nitrogen, sulfur, phosphorus and metal atoms; and

the at least one hydrocarbon compound has either

a cyclic structure, or

a saturated or unsaturated, linear or branched, structure with from 5 to 12 carbon atoms.

3. (Amended) The welding wire according to Claim 1, wherein the at least one hydrocarbon compound comprises a carboxylic acid selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, capric acid, decanoic acid, lauric acid, linderic acid and synthetic fatty acids.

4. (Amended) The welding wire according to Claim 1, wherein the hydrocarbon compound comprises a metal carboxylate that is a metal salt of a carboxylic acid selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, capric acid, decanoic acid, lauric acid, linderic acid and synthetic fatty acids; and

the metal salt comprises a metal selected from the group consisting of Li, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

5. (Amended) The welding wire according to Claim 1, wherein the at least one hydrocarbon compound has a cyclic structure.

6. (Amended) The welding wire according to Claim 1, wherein the at least one hydrocarbon compound comprises a naphthenic acid having a five-membered ring or six-membered ring structure.

7. (Amended) The welding wire according to Claim 1, wherein the at least one hydrocarbon compound comprises a metal naphthenate containing a metal selected from the group consisting of Li, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

8. (Amended) The welding wire according to Claim 1, wherein
the at least one hydrocarbon compound comprises at least one metal naphthenate that
is a metal salt of a naphthenic acid; and

the metal salt comprises a metal selected from the group consisting of Li, Na, Mg, Al,
K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

9. (Amended) The welding wire according to Claim 1, wherein the deposit further
comprises at least one lubricating oil selected from the group consisting of animal and plant
oils, mineral oils, and synthetic oils.

10. (Amended) The welding wire according to Claim 9, wherein the at least one
hydrocarbon compound and the at least one lubricating oil are deposited on the wire surface
in a total amount of 0.1 to 5 g per 10 kg of the wire.

12. (Amended) The welding wire according to Claim 1, wherein the at least one
hydrocarbon compound and the at least one lubricating particle are deposited on the wire
surface in a total amount of 0.1 to 5 g per 10 kg of the wire.

Please add new Claim 13 as follows:

--13. (New) A method of making a welding wire, the method comprising
coating a wire with a deposit, and
producing the welding wire of Claim 1.--

SUPPORT FOR THE AMENDMENT

This Amendment amends the specification; cancels Claims 2 and 11; amends Claims 1, 3-10 and 12; and adds new Claims 13. Support for the amendments is found in the specification and claims as originally filed. The specification is amended to correct typographical errors. Support for the amendments to Claim 1 is found in original Claim 1; canceled Claim 11 ("*lubricating particles* being made of at least one member selected from the group consisting of *molybdenum disulfide, tungsten disulfide, graphite carbon and polytetrafluoroethylene*"); canceled Claim 2 ("*carboxylic acid or a metal salt thereof*"), and in the specification at least at page 6, lines 14-16 ("The above-mentioned saturated or unsaturated hydrocarbon compounds having a linear or branched-chain structure are called "chain compound". Examples of the chain compound include *carboxylic acids or metal carboxylates*"); page 7, lines 2-3 ("The hydrocarbon compounds having a cyclic structure preferably include *carboxylic acids and metal carboxylates*"); page 7, line 18 ("at least one type of lubricating particle"); page 6, lines 9-12; page 23, line 16 ("deposit"); and page 19, lines 3-11 ("Examples of the *hydrocarbon compounds* having a benzene ring structure The cyclic structure may be constituted of atoms including, aside from carbon, *oxygen, nitrogen, sulfur or phosphorus*"). No new matter would be introduced by entry of these amendments.

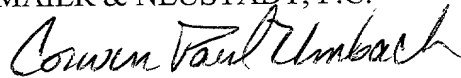
Upon entry of these amendments, Claims 1, 3-10 and 12-13 will be pending in this application. Claim 1 is independent.

REMARKS

Applicants respectfully request early examination and allowance of the application.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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Attachment:

Marked-up copy of amendments



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MARKED-UP COPY OF AMENDMENTS

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Amendment Filed on: <u>Herewith</u>

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Amend the paragraph at the bottom of page 25 as follows:

(Amended) Fluxes for stainless steel having compositions indicated in table 5 and indicated by [Fe] E3 and F4 were combined and packed in hoops M3 and M4, which, respectively, had compositions indicated in Table 4 below, thereby providing basic wires. The wires were each subjected to wire drawing to obtain flux-cored wires for stainless steel having wire diameters of 1.2 to 1.6 mm. The fluxes were packed in the respective hoops so that the weight of the fluxes per total weight of the wire (i.e. flux rate) was set at 15 to 25 wt%.

Amend page 38, Table 9-1 as follows:

Table 9-1 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
[Comparative] Example	1	○	◎	○
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	5	○	○	◎
	6	○	◎	○
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	15	⊙	⊙	○
	16	⊙	⊙	○
	17	⊙	⊙	○
	18	○	⊙	○
	19	○	○	⊙
	20	⊙	⊙	⊙
	21	⊙	⊙	○
	22	⊙	⊙	○
	23	⊙	⊙	○
	24	⊙	⊙	○
	25	○	○	○
	26	⊙	⊙	⊙
	27	⊙	⊙	○
	28	○	○	⊙
	29	○	⊙	○
	30	⊙	⊙	⊙

Amend page 39, Table 9-3 as follows:

Table 9-3 (Amended)

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	36	○	◎	○
	37	○	◎	○
	38	○	◎	○
	39	○	○	◎
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	47	○	◎	○
	48	○	○	◎
	49	○	○	◎
	50	○	○	◎
	51	○	◎	◎

IN THE CLAIMS

Please cancel Claims 2 and 11 without prejudice to or disclaimer of the subject matter therein.

Please amend Claims 1, 3-10 and 12 as follows:

1. (Amended) A welding wire [of the type which consists of a plated or uncovered solid wire and a flux-cored wire for carbon steel or stainless steel, characterized in that] comprising

a wire having a wire surface; and

a deposit on the wire surface, wherein

the deposit comprises

at least one lubricating particle, and

at least one hydrocarbon compound selected from the group consisting of carboxylic acids and metal carboxylates;

the at least one lubricating particle comprises a material selected from the group consisting of molybdenum disulfide, tungsten disulfide, graphite carbon and polytetrafluoroethylene;

the at least one hydrocarbon compound consists of atoms selected from the group consisting of hydrogen, carbon, oxygen, nitrogen, sulfur, phosphorus and metal atoms; and

the at least one hydrocarbon compound has either

a cyclic structure, or

a saturated or unsaturated [hydrocarbon compounds], [which have] linear or branched, structure with from 5 to 12 carbon atoms [and a linear or branched structure, and hydrocarbon compounds having a cyclic structure is present on a wire surface].

3. (Amended) [A] The welding wire according to Claim [2] 1, wherein [said] the at least one hydrocarbon compound comprises a carboxylic acid [is a member] selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, capric acid, decanoic acid, lauric acid, linderic acid and synthetic fatty acids.

4. (Amended) [A] The welding wire according to Claim [3] 1, wherein [said] the hydrocarbon compound comprises a metal carboxylate that is a metal salt [consists] of [a member] a carboxylic acid selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, capric acid, decanoic acid, lauric acid, linderic acid and synthetic fatty acids; and

the metal salt comprises a metal selected from the group consisting of [those salts of said carboxylic acids defined in Claim 3 and metals selected from] Li, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

5. (Amended) [A] The welding wire according to Claim 1, wherein [said] the at least one hydrocarbon compound [having] has a cyclic structure [consists of a carboxylic acid or a metal salt thereof].

6. (Amended) [A] The welding wire according to Claim [5] 1, wherein [said] the at least one hydrocarbon compound [consists of] comprises a naphthenic acid having a five-membered ring or six-membered ring structure.

7. (Amended) [A] The welding wire according to Claim [5] 1, wherein [said] the at least one hydrocarbon compound [consists of at least one] comprises a metal naphthenate containing a metal selected from the group consisting of Li, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

8. (Amended) [A] ~~The~~ welding wire according to Claim [5] 1, wherein [said]
~~the at least one~~ hydrocarbon compound [consists of] comprises at least one metal
naphthenate [of] that is a metal salt of a naphthenic acid; and
the metal salt comprises a metal selected from the group consisting of Li, Na, Mg, Al,
K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

9. (Amended) [A] ~~The~~ welding wire according to [any one of Claims] Claim 1 [to 8],
wherein the deposit further [comprising] comprises at least one lubricating oil selected from
the group consisting of animal and plant oils, mineral oils, and synthetic oils [, said at least
one lubricating oil being present on the wire surface].

10. (Amended) [A] ~~The~~ welding wire according to Claim 9, wherein [said] ~~the~~ at
least one hydrocarbon compound and [said] ~~the~~ at least one lubricating oil are deposited on
the wire surface in a total amount of 0.1 to 5 g per 10 kg of the wire.

12. (Amended) [A] ~~The~~ welding wire according to Claim [11] 1, wherein [said] ~~the~~ at
least one hydrocarbon compound [,] and [said] the at least one lubricating [particles] particle
are deposited on the wire surface in a total amount of 0.1 to 5 g per 10 kg of the wire.

Please add new Claim 13 as follows:

--13. (New) A method of making a welding wire, the method comprising
coating a wire with a deposit, and
producing the welding wire of Claim 1.--